APPENDIX A

(Copy of page 254 of Newton's Telecom Dictionary)

(Printed from Newton's Telecom Dictionary, 16th Edition, Telecom Books, New York, NY,

February 2000, 3 pages)

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NEWTON'S TELECOM DICTIONARY

The Official Dictionary
of Telecommunications
Networking and
the Internet

16th EXPANDED & UPDATED EDITION

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NEWTON'S TELECOM DICTIONARY

TSS, or ITU the fax has. An NSF (Non-Standard Facilities) frame about what vendor-specific features the fax has comes next; a CSI (Called Subscriber Identification) frame gives the calling fax's telephone number. The sending fax responds with its Digital Command Signal (DCS) frames, informing the answering fax of modem speed, image width, image encoding and page length. The sender's phone number then comes across in a Transmitter Subscriber Information (TSI) frame, as well as a response to the answering fax's non-standard facilities frame.

DIEL Advisory committee on telecommunications for Disabled and Elderly People (UK).

Dielectric A nonconducting or insulating substance which resists passage of electric current, allowing electrostatic induction to act across it, as in the insulating medium between the plates of a condenser. Also an insulating material otherwise used (e.g. a Bakelite panel, or the cambric covering of a wire is a dielectric material). See also Semiconductor.

Dielectric Absorption The penetration of a dielectric by the electric strain during a period of time.

Dielectric Constant The ratio of the capacity of a condenser with a given dielectric to the capacity of the same condenser with air as the dielectric.

Dielectric Lens A lens made of dielectric material that refracts radio waves in the same manner that an optical lens refracts light waves.

Dielectric Process A printing process that uses a specially treated, charge-sensitive paper. Paper is roller-fed past an electrode array where an electrical charge is applied line-by-line to form a latent image, then passed through a toner. The toner adheres to the charged image and heat fuses the toner to the paper to create the printed document.

Dielectric Sheath Or Cable A sheath or cable that contains no electrically conducting materials such as metals. Dielectric cables are sometimes used in areas subject to high lightning or electro-magnetic interference. Synonym for non-metallic cable.

Dielectric Strength The property of material which resists the passage of an electric current. It is measured in terms of voltage required to break down this resistance (such as volts per mil).

Dielectric Test A test in which a voltage higher than the rated voltage is applied for a specified time to determine the adequacy of the insulation under normal conditions.

Differential Manchester Encoding A digital signaling technique in which there is a transition in the middle of each bit time to provide clocking. The encoding of a zero or one is represented by the presence (absence) of a transition at the beginning of the bit period.

Differential Mode For AC power systems; the term differential mode may refer to either noise or surge voltage disturbances. The terms normal mode and differential mode are interchangeable. Differential mode disturbances are those that occur between the power hot (black wire) and the neutral conductor (white wire). Most differential mode disturbances result from load switching within a building, with motor type loads being the biggest contributor. Surge voltages that come from outside of the building, such as surges caused by lightning, enter the building on the hot (black) wire and are therefore primarily differential mode in nature since the neutral (white) wire is nominally at ground voltage. Surge suppressors sometimes divert differential mode noise and surges into the neutral wire, resulting in voltages on the neutral wire called common modem noise or surge voltages. This definition courtesy APC.

Differential Mode Delay See DMD.

Differential Mode Termination A type of cable termination where a pair of wires is terminated by a resistance matching the cable impedance, but there is no termination resistance between that pair and any adjacent pairs. For low-frequency signals this is often acceptable, but for a high-frequency environment (whether due to high-speed network protocols, or due to transmission towers nearby), this allows large voltages to exist between one pair and an adjacent pair.

Differential Phase Shift Keying DPSK. A modulation technique used to improve the efficiency with which the naturally analog electromagnetic waveform is employed to carry digital bits in a digital bitstream. DPSK is a form of "coherent demodulation," in which the phase of the incoming signal is compared to a replica of the carrier waveform. The carrier waveform (the carrier frequency "carries" the data, and the waveform is characteristic of all electromagnetic energy) is used as a reference point. With DPSK, the carrier waveform reference point serves to record changes in the binary data code. In other words, a "1" in the PSK (Phase Shift Keying) signal is denoted by no change in the DPSK signal, and a "0" is denoted by a change in the DPSK signal. DPSK works much better than PSK because so many things can foul up the "absolute" value of a signal sent over an Unshielded Twisted Pair (UTP) cable pair or over a microwave radio channel. ElectroMagnetic Interference (EMI) of all sorts can cause the "absolute" value of an originating signal to be "questionable" on the receiving end. Assuming some reasonable level of consistency in the impact of such factors from transmitter to receiver, it helps a lot to have a reference point. DPSK does that. See also Amplitude Modulation, Frequency Modulation, and Phase Shift Keying.

Differential Positioning Precise measurements of the relative positions of two receivers tracking the same GPS (Global Positioning System) signals.

Differentiated Services Diffserve, or DiffServe. A set of technologies proposed by the IETF (Internet Engineering Task Force) which would allow Internet and other IP-based network service providers to offer differentiated levels of service to individual customers and their information streams. On the basis of a DiffServe CodePoint (DSCP) marker in the header of each IP (Internet Protocol) packet, the network routers would apply differentiated grades of service to various packet streams, forwarding them according to different Per-Hop Behaviors (PHBs). In other words, for an additional charge, DiffServe would allow service providers to provide a certain user with a preferential Grade of Service (GoS) for all packet traffic with appropriate indicators in the packet headers. The preferential GoS, which can only be attempted and not guaranteed, would include a lower level of packet latency (delay), as those packets would advance to the head of a packet queue in a buffer should the network suffer congestion. RSVP (Resource ReserVation Protocol), a developing protocol, is an element of DiffServe. See also GoS, IETF, IP, Router, and RSVP.

Diffie-Hellman Key A technique of changing encryption techniques on the fly. In a landmark 1976 paper, called New Directions in Cryptograph, IEEE Transactions on Information Theory, W. Diffie and M. Hellman describe a method by which a secret key can be exchanged using messages that do not need to be kept secret. This type of "public" key management provides a significant cost advantage by eliminating the need